

RECEIVED

NOV 09 2001

TECH CENTER 1600/2900

1600

RAW SEQUENCE LISTING

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:29

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw

3 <110> APPLICANT: Ayyavoo, Velpandi
 4 Nagashunmugam, Thandavarayan
 5 David B., Weiner
 7 <120> TITLE OF INVENTION: Attenuated VIF DNA Immunization Cassettes For Genetic
 Vaccines

9 <130> FILE REFERENCE: UPAP-0287
 11 <140> CURRENT APPLICATION NUMBER: 09/486,625A
 12 <141> CURRENT FILING DATE: 2000-09-13
 14 <150> PRIOR APPLICATION NUMBER: 60/059,283
 15 <151> PRIOR FILING DATE: 1997-09-18
 17 <150> PRIOR APPLICATION NUMBER: 60/060,172
 18 <151> PRIOR FILING DATE: 1997-09-26
 20 <160> NUMBER OF SEQ ID NOS: 46
 22 <170> SOFTWARE: PatentIn version 3.1
 24 <210> SEQ ID NO: 1
 25 <211> LENGTH: 190
 26 <212> TYPE: PRT
 27 <213> ORGANISM: Artificial Sequence ✓
 29 <220> FEATURE:
 30 <223> OTHER INFORMATION: Novel Sequence ✓
 32 <400> SEQUENCE: 1

ENTERED

ENTERED

34 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met
 35 1 5 10 15
 38 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys His His Met Tyr Val Ser
 39 20 25 30
 42 Lys Lys Ala Arg Trp Phe Tyr Arg His His Tyr Glu Ser Pro His Pro
 43 35 40 45
 46 Lys Val Ser Ser Glu Val His Ile Pro Leu Gly Asp Ala Arg Leu Glu
 47 50 55 60
 50 Thr Thr Thr Tyr Trp Gly Leu His Gly Glu Arg Asp Trp His Leu Gly
 51 65 70 75 80
 54 Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr Gln Val
 55 85 90 95
 58 Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe Asp Cys
 59 100 105 110
 62 Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly Tyr Arg Val Ser
 63 115 120 125
 66 Pro Arg Cys Glu Tyr Gln Ala Gly His Asn Lys Val Gly Ser Leu Gln
 67 130 135 140
 70 Tyr Leu Ala Leu Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys Pro Pro
 71 145 150 155 160
 74 Leu Pro Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys Pro Gln
 75 165 170 175
 78 Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His
 79 180 185 190
 82 <210> SEQ ID NO: 2
 83 <211> LENGTH: 26
 84 <212> TYPE: DNA

RAW SEQUENCE LISTING

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:29

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw

85 <213> ORGANISM: Artificial Sequence
 87 <220> FEATURE:
 88 <223> OTHER INFORMATION: Novel Sequence ✓
 90 <400> SEQUENCE: 2
 91 gaaagcttat ggaaaacaga tggcag 26
 94 <210> SEQ ID NO: 3
 95 <211> LENGTH: 23
 96 <212> TYPE: DNA
 97 <213> ORGANISM: Artificial Sequence
 99 <220> FEATURE:
 100 <223> OTHER INFORMATION: Novel Sequence ✓
 102 <400> SEQUENCE: 3
 103 gcaaagcttt cattgtatgg ctc 23
 106 <210> SEQ ID NO: 4
 107 <211> LENGTH: 190
 108 <212> TYPE: PRT
 109 <213> ORGANISM: Artificial Sequence ✓
 111 <220> FEATURE:
 112 <223> OTHER INFORMATION: Novel Sequence ✓
 114 <400> SEQUENCE: 4
 116 Met Glu Asn Arg Trp Gln Val Ile Ile Val Trp Gln Val Asp Arg Met
 117 1 5 10 15
 120 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys Tyr His Met Tyr Ser Lys
 121 20 25 30
 124 Lys Ala Arg Glu Trp Phe Tyr His His Tyr Gln Ser Pro His Pro Lys
 125 35 40 45
 128 Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu Glu Ile
 129 50 55 60
 132 Thr Ser Phe Trp Gly Leu His Thr Gly Glu Arg Asp Trp His Leu Gly
 133 65 70 75 80
 136 Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr His Val
 137 85 90 95
 140 Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe Asp Cys
 141 100 105 110
 144 Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg Val Ser
 145 115 120 125
 148 Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser Leu Gln
 149 130 135 140
 152 Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys Pro Pro
 153 145 150 155 160
 156 Leu Ala Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys Pro Gln
 157 165 170 175
 160 Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His
 161 180 185 190
 164 <210> SEQ ID NO: 5
 165 <211> LENGTH: 192
 166 <212> TYPE: PRT
 167 <213> ORGANISM: Artificial Sequence
 169 <220> FEATURE:

RAW SEQUENCE LISTING

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:29

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw

170 <223> OTHER INFORMATION: Novel Sequence ✓

172 <400> SEQUENCE: 5

174 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met

175 1 5 10 15

178 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys Tyr His Met Tyr Arg Ser

179 20 25 30

182 Lys Lys Ala Arg Glu Trp Phe Tyr Arg His His Tyr Gln Ser Pro His

183 35 40 45

186 Pro Arg Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu

187 50 55 60

190 Glu Ile Thr Thr Tyr Trp Gly Leu His Thr Gly Glu Arg Asp Trp His

191 65 70 75 80

194 Leu Gly Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr

195 85 90 95

198 Gln Val Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe

199 100 105 110

202 Asp Cys Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg

203 115 120 125

206 Val Ser Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser

207 130 135 140

210 Leu Gln Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys

211 145 150 155 160

214 Pro Pro Leu Pro Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys

215 165 170 175

218 Pro Gln Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His

219 180 185 190

222 <210> SEQ ID NO: 6

223 <211> LENGTH: 192

224 <212> TYPE: PRT

225 <213> ORGANISM: Artificial Sequence ✓

227 <220> FEATURE:

228 <223> OTHER INFORMATION: Novel Sequence ✓

230 <400> SEQUENCE: 6

232 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met

233 1 5 10 15

236 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys Tyr His Met Tyr Arg Ser

237 20 25 30

240 Lys Lys Ala Arg Glu Trp Phe Tyr Arg His His Tyr Gln Ser Pro His

241 35 40 45

244 Pro Lys Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu

245 50 55 60

248 Glu Thr Thr Thr Tyr Trp Gly Leu His Thr Gly Glu Arg Asp Trp His

249 65 70 75 80

252 Leu Gly Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr

253 85 90 95

256 Gln Val Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe

257 100 105 110

260 Asp Cys Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg

261 115 120 125

RAW SEQUENCE LISTING

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:29

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw

```

264 Val Ser Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser
265      130      135      140
268 Leu Gln Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys
269 145      150      155      160
272 Pro Pro Leu Pro Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys
273      165      170      175
276 Pro Gln Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His
277      180      185      190

```

280 <210> SEQ ID NO: 7

281 <211> LENGTH: 192

282 <212> TYPE: PRT

283 <213> ORGANISM: Artificial Sequence ✓

285 <220> FEATURE:

286 <223> OTHER INFORMATION: Novel Sequence ✓

288 <400> SEQUENCE: 7

```

290 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met
291 1      5      10      15
294 Arg Ile Arg Thr Trp Asn Ser Leu Val Thr Tyr His Met Tyr Arg Ser
295      20      25      30
298 Gln Lys Ala Arg Glu Trp Phe Asn Arg His His Tyr His Ser Pro His
299      35      40      45
302 Pro Lys Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu
303      50      55      60
306 Ala Ile Pro Thr Phe Trp Gly Leu His Thr Gly Glu Arg Asp Trp His
307 65      70      75      80
310 Leu Gly Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr
311      85      90      95
314 Gln Val Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe
315      100      105      110
318 Asp Cys Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg
319      115      120      125
322 Val Ser Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser
323      130      135      140
326 Leu Gln Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys
327 145      150      155      160
330 Pro Pro Leu Pro Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys
331      165      170      175
334 Pro Gln Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His
335      180      185      190

```

338 <210> SEQ ID NO: 8

339 <211> LENGTH: 192

340 <212> TYPE: PRT

341 <213> ORGANISM: Artificial Sequence

343 <220> FEATURE:

344 <223> OTHER INFORMATION: Novel Sequence

346 <400> SEQUENCE: 8

```

348 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met
349 1      5      10      15
352 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys Tyr His Met Tyr Arg Ser

```

RAW SEQUENCE LISTING

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:29

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw

```

353          20          25          30
356 Lys Lys Ala Arg Glu Trp Phe Tyr Arg His His Tyr Gln Ser Pro His
357          35          40          45
360 Pro Lys Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu
361          50          55          60
364 Glu Ile Thr Thr Tyr Trp Gly Leu His Thr Gly Glu Arg Asp Trp His
365 65          70          75          80
368 Leu Gly Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr
369          85          90          95
372 His Val Asp Pro Asp Leu Ala Asp His Leu Ile His Leu Cys Tyr Phe
373          100         105         110
376 Asp Cys Leu Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg
377          115         120         125
380 Val Ser Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser
381          130         135         140
384 Leu Gln Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys
385 145         150         155         160
388 Pro Pro Leu Pro Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys
389          165         170         175
392 Pro Gln Lys Thr Lys Gly His Arg Gly Ser His Thr Met Asn Gly His
393          180         185         190
396 <210> SEQ ID NO: 9
397 <211> LENGTH: 192
398 <212> TYPE: PRT
399 <213> ORGANISM: Artificial Sequence
401 <220> FEATURE:
402 <223> OTHER INFORMATION: Novel Sequence
404 <400> SEQUENCE: 9
406 Met Glu Asn Arg Trp Gln Val Met Ile Val Trp Gln Val Asp Arg Met
407 1          5          10          15
410 Arg Ile Arg Thr Trp Asn Ser Leu Val Lys Tyr His Met Tyr Arg Ser
411          20          25          30
414 Lys Lys Ala Arg Glu Trp Phe Tyr Arg His His Tyr Gln Ser Pro His
415          35          40          45
418 Pro Lys Val Ser Ser Glu Val His Ile Pro Leu Glu Asp Ala Arg Leu
419          50          55          60
422 Val Ile Thr Thr Tyr Trp Gly Leu His Thr Gly Glu Arg Asp Trp His
423 65          70          75          80
426 Leu Gly Gln Gly Val Ser Ile Glu Trp Arg Lys Arg Arg Tyr Ser Thr
427          85          90          95
430 His Val Asp Pro Asp Leu Ala Asp Gln Leu Ile His Leu Tyr Tyr Phe
431          100         105         110
434 Asp Cys Phe Ser Glu Ser Ala Ile Arg Lys Ala Ile Leu Gly His Arg
435          115         120         125
438 Val Ser Pro Arg Cys Glu Tyr Arg Ala Gly His Ser Lys Val Gly Ser
439          130         135         140
442 Leu Gln Tyr Leu Ala Ile Ala Ala Leu Ile Thr Pro Lys Lys Ile Lys
443 145         150         155         160
446 Pro Pro Leu Ala Ser Val Arg Lys Leu Thr Glu Asp Arg Trp Asn Lys

```

VERIFICATION SUMMARY

DATE: 10/15/2001

PATENT APPLICATION: US/09/486,625A

TIME: 15:35:30

Input Set : A:\UPAP0287.ST25.txt

Output Set: N:\CRF3\10152001\I486625A.raw